MT. CARMEL PUBLIC UTILITY CO.

ELECTRIC TRANSMISSION AND DISTRIBUTION REVIEW

ANNUAL REPORTING PERIOD -
2019

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PART 411.120(b)(3) ANNUAL REPORT

Subsection (b)(3)(A): A plan for future investment and, where necessary, reliability improvements for the jurisdictional entity's transmission and distribution facilities that will ensure continued reliable delivery of energy to customers and provide the delivery reliability needed for fair and open competition, along with the estimated cost of implementing the plan and any changes to the plan from the previous annual report.

i) The Plan must cover all operating areas, including a description of the relevant characteristics of each operating area and the age and current condition of the jurisdictional entity's equipment and facilities in each operating area.

Mt. Carmel Public Utility Co. maintains only one operating area. This territory covers approx. 107 square miles, one incorporated municipality and approx. 5,3200 electric customers. Within the operating area there are approximately 19.16 line miles of transmission facilities, approximately 38.16 line miles of 69Kv Source of Supply facilities, 4.91 line miles of 69kv distribution facilities 256.88 line miles of 7200Kv overhead distribution facilities and approximately 9.40 line miles of 7200Kv underground distribution facilities, with approx. 27.21% of this total being urban distribution facilities. Five distribution substations with a total of fifteen distribution feeders, and two industrial\wholesale substations.

The information regarding the age and current condition of Mt. Carmel Public Utility Co. facilities is addressed in the response to subsection (b)(3)(G)(i).

Table 1: Budgeted Capital and Operations and Maintenance, O&M, amounts for the next three years.

CATEGORY	YEAR			
	2020	2021	2022	2023
Transmission – Capital	$70.000	$70.000	$70.000	$70.000
Transmission – O&M	$24,969	$25,718	$26,490	$27,285
Distribution\Source of Supply - Capital	$378,000	$80,600	$81,218	$21,855
Distribution – Capital	$263,600	$439,808	$343,627	$135,061
Distribution O&M	$1,929,181	$1,987,056	$2,046,668	$2,108,068
Total	$2,665,750	$2,603,182	$2,568,003	$2,362,269

The estimated cost of transmission supplied to Mt. Carmel by others is not included in the values for Transmission Operations and Maintenance listed above.

The estimated Transmission Capital values for 2020 thru 2022 reflect the proposed Transmission Capital expenditures for those years as outlined in this report.

The Distribution\Source of Supply Capital estimates for 2020 thru 2022 in the table above represent the completion of projects identified in this report through those years. The values past 2022 represent a more baseline investment as no projects have been defined in this category for those years.

Based on the Uniform System of Accounts, Distribution\Source of Supply O&M values are incorporated into the O&M values for Distribution in the table above.

The Distribution Capital budget amounts for 2020 thru 2022 represent the estimated values associated with the completion of projects outlined in this report for those years. The 2023 value represents a baseline investment in Distribution Capital for that year, as no large scale capital projects have been identified past 2021.

ii) Proposed Reliability Improvements,

Mt. Carmel proposes no further large scale system wide or circuit specific projects for the next three years. Rather, Mt. Carmel believes that the completion of the projects identified in subsection (B)(3)(b) below as well as continued system maintenance will provide system reliability improvements in that term.

iii) The plan shall identify all foreseeable reliability challenges and describe specific projects for addressing each.

Reliability challenges have been identified in the following areas:

Tree Related Interruptions – Mt. Carmel Public Utility Co. recognizes the impact that tree contact has on service reliability. Efforts to minimize interruptions due to tree contact include the installation of underground facilities, where feasible, the study and analyses of areas that pose accessibility conflicts to address these areas as appropriate. MCPU

strives to maintain a three year cycle for distribution trimming. Where it is agreeable with the property owner trees are removed completely in an effort to eliminate potential future contact.

Animal Related Interruptions – See "Animal Related" under subsection (b)(3)(A)(vii) below

Circuits With High Occurrences of Interruptions – Distribution circuits which have experienced high numbers of outages are studied, and where applicable, sectionalizing devices are added, line reclosers are relocated or added, and, where feasible, portions are switched to another distribution circuit, or portions which pose accessibility issues are rebuilt or relocated as applicable. In addition expenditures listed in the table in response to subsection (b)(3)(A)(ii) above, under Distribution Operations and Maintenance, allow for pole and crossarm repair or replacement, insulator replacement, and arrestor replacement or installation as may be necessary to improve circuit reliability.

Facility Accessibility – In areas where access to distribution facilities is limited studies are conducted to determine the feasibility of facility rebuild or relocation.

iv) The plan shall provide a timetable for the achievement of the plans goals.

A schedule for completion of those items listed in sections ii and iii above is indicated for those issues that are not ongoing.

v) The plan shall report and address all unresolved reliability complaints about the jurisdictional entity's system received from other utilities, independent system operators, or alternative retail electric suppliers.

Mt. Carmel Public Utility Co. has received no reliability complaints from other utilities, independent system operators, or alternative retail electric suppliers.

vi) The plan shall report the specific actions, if any, the jurisdictional entity is taking to address the concerns raised in complaints received from other utilities, independent system operators, or alternate retail electric suppliers.

No actions are required.

vii) The plan shall consider all interruption causes listed in subsection (b)(3)(D)

Animal Related – Animal guards are installed at new transformer installations and on existing facilities as animal related problems are encountered.

Tree Related – This issue is covered in subsection(b)(3)(A),iii above.

Weather Related – Lightning arrestors are replaced as damaged equipment is encountered. Mt. Carmel continues to install additional lightning arrestors throughout its system in an effort to further minimize interruptions caused by lightning strikes.

Intentional\Maintenance Related – Outages that are scheduled for the purposes of maintenance or intentionally initiated in an effort to make service restoration work as safe as possible are kept to as minimal a duration as possible. Efforts are made to notify customers who may be impacted by the outage as to the estimated duration.

For all other interruption causes listed in subsection (b)(3)(D), Mt. Carmel believes that the "General System Wide Improvements" and "Circuit Specific Improvements" listed in subsection (b)(3)(A)(ii) above combined with the items outlined in subsection (b)(3)(B) and subsection (b)(3)(J) below address these remaining issues.

viii) The plan must consider the effects on customers and the cost of reducing the number of interruptions reported as required by subsection (b)(3)(C).

Table 2: The following chart depicts the effects of interruptions, by cause category, on Mt. Carmel customers during the 2019 reporting period.

CATEGORY	NUMBER OF EVENTS	SERVICE INTERRUPTIONS	TOTAL DURATION (MINUTES)
Animal Related	23	259	11,634.64
Vegetation Related	55	792	83,899.06
Employee\Contractor Personnel Errors	-0-	-0-	-0-

Underground Equipment Related	-0-	-0-	-0-
Transmission Equipment	-0-	-0-	-0-
Substation Equipment	1	1	49
Weather	105	4,047	429,535.94
Intentional\Maintenance	91	2,614	4,066,066.99
Other Alternative Supplier\Utility	1	1,584	30,301.70
Customer Equipment	28	32	1,823.04
Public	5	825	32,085.75
Overhead Equipment	31	1,429	109,496.84
Unknown	41	1,087	74,018.08
Other	-0-	-0-	-0-
Overload	2	7	577.97

The budgeted values provided in subsection (b)(3)(A)(ii) above under Distribution Operations and Maintenance allow for tree trimming operations, installation of animal protection, adding sectionalizing devices, pole and crossarm replacement or repair, insulator replacement, and arrestor replacement or installation as may be necessary to improve circuit reliability. Cost estimates, where available, are provided for circuit specific projects as outlined in subsection (b)(3)(A)(ii) above and subsection (b)(3)(B) and subsection (b)(3)(J) below.

Subsection (b)(3)(B): A report of the jurisdictional entity's implementation of this plan filed pursuant to subsection (b)(3)(A) of this Section for the previous annual reporting period, including an identification of significant deviations from the first year of the previous plan and the reasons for the deviations.

Information regarding the implementation of the previous year's plan and any significant deviations from this plan is listed below.

Table 3: The following table represents estimated and actual expenditures for 2019.

Category	Budget Estimate – 2019	Actual Expenditures – 2019
Capital (Transmission and Distribution)	$735,500	$883,820
O&M (Transmission and Distribution)	$1,923,036	$2,066,946
Total	$2,658,536.00	$2,950,766

Reliability improvements as indicated in the previous year's report(s).

Note: Mt. Carmel's service territory experienced an abnormally wet spring and early summer in 2019. Local reports indicated that as of June 25, 2019 the area had received approximately 13.73 inches of rainfall in excess of the normal for that period. Additionally, National Weather Service records indicate that Mt. Carmel's service territory received 60-70 inches of precipitation during 2019, which is 125-150% of the yearly normal for the area. This excess precipitation shortened MCPU's construction season and limited access to many areas of construction identified in the plan below. Due to this limited access Mt. Carmel focused its efforts on circuit inspection and maintenance concerns as well as mid-cycle tree trimming operations in areas that were accessible to equipment. This work is outlined below as "work not part of the previous year's plan".

As indicated under subsection (b)(3)(A), Sub-part "ii" of Mt. Carmel's "Electric Transmission and Distribution Review for the 2018 reporting period.

Mt. Carmel proposes no further large scale system wide or circuit specific projects for the next three years. Rather, Mt. Carmel believes that the completion of the projects identified in section 411.120(B)(3)(b) below as well as continued system maintenance will provide system reliability improvements in that term.

As indicated under subsection (b)(3)(A), Sub-part "ii" of Mt. Carmel's "Electric Transmission and Distribution Review for the 2017 reporting period.

Transmission Facilities:

In 2019 Mt. Carmel plans to replace the remaining eleven (11) structures in its 138Kv transmission facilities which lie in Edwards County, Illinois at an estimated expenditure of $70,000.00 for that year. In 2020 and 2021 Mt. Carmel plans to replace approximately ten (10) pole structures per year beginning at the Wabash-Edwards County line and working eastward toward MCPU's Keensburg Substation. This equates to approximately forty percent of the total pole structures in this section of line. The total estimated expenditure for these two years is $140,000.00.

2018 Update or Deviation: Mt. Carmel plans to continue this project into the year 2022.

Current 2019 Update or Deviation: Due to a shortened construction season, as indicated above, Mt. Carmel made no progress on this project in 2019. In early January 2020 Mt. Carmel was able to set approximately ten (10) of the eleven (11) structures scheduled for replacement in 2019. Mt. Carmel plans to complete the transfer of these structures as weather conditions allow. There have been no significant changes to the proposed 2020-2021 portions of this project.

Distribution\Source of Supply:

Mt. Carmel is currently working on constructing approximately 1.09 line miles of 69Kv Source of Supply facilities between its Plant and South Division Substations. This project would allow for the removal of approximately 2.23 line miles of facilities from a known floodplain area along the Wabash River to a more accessible location on the landside of the levee surrounding the southern portion of the City of Mt. Carmel. This project is being undertaken because the existing facilities are nearing their maintenance schedule and have historically been involved in outage events as a result of damage during high water events. Mt. Carmel estimates this project will be completed in 2019 at a total expenditure of $250,000.00.
2018 Update or Deviation: There have been no significant changes to the time line for completion of this project. Mt. Carmel estimates the 2019 expenditure for completion of this project to be $285,500.00.
Current 2019 Update or Deviation: Due to R.O.W. acquisition delays Mt. Carmel has rescheduled this project to begin in the summer of 2020. There has been no change to the estimated expenditure for completion.

As indicated under subsection (b)(3)(A), Sub-part "ii" of Mt. Carmel's "Electric Transmission and Distribution Review for the 2016 reporting period.

Circuit #22000 – (Allendale Feeder) In 2018 and 2019 Mt. Carmel plans to upgrade the existing aged URD primary and secondary facilities in both the Northwood and Cherry Hills Subdivisions. This project would replace approx. 1500 total feet of aged direct bury URD facilities in these locations and impact approx. thirty-one total customers. The estimated expenditure for these projects is $109,590.00.
2017 Update or Deviation: Mt. Carmel had originally scheduled these projects to begin in 2018 with an estimated completion date of 2019. After a review of the status of ongoing projects, as defined in this report, and the addition of the Distribution\Source of Supply projects listed as "Proposed Reliability Improvements on page two of this report Mt. Carmel has rescheduled this project for the 2019 thru 2020 reporting periods. Mt. Carmel believes that this rescheduling will allow for the completion of projects involving the Distribution\Source of Supply infrastructure and complete the upgrade of the facilities which are the backbone of Mt. Carmel's supply to its customers.
2018 Update or Deviation: In October of 2018 MCPU completed a portion of this project by replacing approximately 900 feet of aged URD Primary cable in the Northwood Subdivision area as well as replacing two vault type transformers units with pad mount units. Although Mt. Carmel had reported this work would be done in 2019 and 2020, as stated above, delays in other proposed projects caused Mt. Carmel to reevaluate its project work schedule. This portion of the project impacted nine customers at an estimated expenditure of $50,946.12. Mt. Carmel estimates that the Cherry Hills portion of this project will be completed in the fall 2019 at an estimated expenditure of $40,000.00.
Current 2019 Update or Deviation: Mt. Carmel did not complete the Cherry Hills portion of this project as described. A review of this project and the Bona Terra project, outlined below, concluded that due to continued outage concerns as well as unusually high vegetation growth in the heavily wooded Bona Terra area as a result of higher than normal precipitation amounts during the two (2) most recent reporting periods Mt. Carmel has opted to reschedule this project for the 2021 construction season. There has been no modification to the original expenditure for completion.

In 2019 MT. Carmel proposes to replace approx. 3700 feet of existing OHD primary facilities in the Bona Terra Subdivision with URD facilities. This is a heavily wooded subdivision and access to the existing facilities is limited due to restricted R.O.W. areas. Mt. Carmel estimates that this project would impact approx. 21 customers at an expenditure of $95,145.00
2017 Update or Deviation: Mt. Carmel has made no significant changes to the scope of this project.
2018 Update or Deviation: Mt. Carmel has reviewed the scope of this project and revised it to reflect this review. Currently Mt. Carmel plans to replace only approximately 1,600 ft. of Single Phase OHD conductor with URD facilities. The project completion is scheduled for the summer of 2019 at an estimated expenditure of $100,000.00.
Current 2019 Update or Deviation: Due to unusually wet conditions during the spring of 2019 shortening the construction season and the volume of other work outlined in this section Mt. Carmel has rescheduled this project for the 2020 construction season. There has been no modification to the original expenditure for completion.

Circuits 11000 – (Circuit #1), Circuit 12000 – (Circuit #2) and Circuit 16000 – (Circuit #6) In 2020 Mt. Carmel plans to begin the reconstruction of approx. 2.57 total line miles of existing aged three phase OHD 4/0 CU conductor with 4/0 Hendrix OHD construction. These facilities represent the trunk lines for Circuits 11000,12000, and 16000 originating at Mt. Carmel's plant substation and terminating at 11th and Mulberry. Combined these facilities serve approx. 775 customers in the residential and business districts in the central and eastern portions of the city of Mt. Carmel. The estimated expenditure for this project is $425,000.
2017 Update or Deviation: Mt. Carmel has made no significant changes to the schedule or budget for project.
2018 Update or Deviation: Mt. Carmel plans to begin this project in the 2020 Plan Year, with a current completion date of 2021, no significant changes have been made to the budget for this project.
Current 2019 Update or Deviation: Due to delays in other projects and the volume of other work completed, as described in this report, Mt. Carmel plans to begin the engineering phase of this project in the summer of 2020.

As indicated under subsection (b)(3)(A), Sub-part "ii" of Mt. Carmel's "Electric Transmission and Distribution Review for the 2015 reporting period.

Distribution\Source of Supply:

Between 2017 and 2019, MCPU plans to replace approx. 25 structures in a section of its supply facilities between the South Division Substation and the Keensburg area due to the age and condition of the structures. This line section is typically out of service and is used as a secondary source of 69KV supply from MCPU's Keensburg Substation to MCPU's distribution system. A recent inspection of the facilities identified these 25 structures as being in need of replacement. MCPU estimated the expenditure for this project to be $82,753.13.
2016 Update or Deviation: After further review of these facilities Mt. Carmel redesigned the scope of this project to include the replacement of all existing Z-Frame structures in the pole line to stand-off type construction due to the general age of the construction type. The current estimate for the completion of this project in 2019 is, $1,936,600.00.
2017 Update or Deviation: Note: Mt. Carmel made a typographical error in its 2016 reporting of the total value for the completion of this project through 2019. The actual value should be $193,600.00 as opposed to the estimate presented in the above paragraph.

During the most recent reporting period MCPU replaced approximately thirty-nine (39) pole structures in this line section. This represents approximately 46.43 percent of the total structures involved in the project and a total of approximately 2.21 line miles of facilities. Mt. Carmel estimates the 2017 expenditure for this project to be $162,839.35. There has been no change to the 2019 completion schedule, the current estimate for the completion of this project in those two years is $120,000.00.
2018 Update or Deviation: Based on the volume of other work outlined in this report Mt. Carmel has revised its construction schedule to continue this project in the 2020 and 2021 Plan Years.
Current 2019 Update or Deviation: There have been no changes to the scope of this project.

In 2017, MCPU also plans to begin a pole replacement program on those structures in its 69Kv facilities between the Plant Substation and E. 1200 Rd. The Distribution\Source of Supply Capital budget for 2018 and 2019 above includes cost associated with the continuation of this project into those years.
2016 Update or Deviation: In January MCPU replaced one (1) structure in this pole line at an estimated expenditure of $9,401.99. Additionally, in November MCPU replaced eight (8) structures in this pole line at an estimated expenditure of $57,502.84. There have been no changes to the 2019 completion schedule for this project.
2017 Update or Deviation: Between March and July of the most recent reporting period, Mt. Carmel replaced approximately thirty-one (35) pole structures in this line section at an estimated expenditure of $274,609.29. based on the volume of work that was completed on this project in the 2016 and 2017 reporting periods Mt. Carmel has revised the completion schedule to be 2018. The Distribution\Source of Supply estimates identified in the table on page one above include the expenditures associated with the completion of this project in that year.
2018 Update or Deviation; In November of 2018 Mt. Carmel replaced four (4) of the remaining poles in this project at an estimated expenditure of $54,579.36. Following that date, unseasonably wet weather conditions have not allowed Mt. Carmel to access the remaining structures for replacement. Mt. Carmel estimates that there are five (5) structures which remain to be changed in this project. Mt. Carmel intends to replace these facilities once weather and accessibility conditions will allow.
Current 2019 Update or Deviation: In late September 2019 Mt. Carmel completed the required pole replacements in this project at an estimated expenditure of $45,672.35.

The following work was not part of the plan submitted in the previous years' report.

Circuit #12000 – (Circuit #2)

See items listed under Section (b)(3)(J) below

Circuit #14000 – (Circuit #4)

In September, the transformer installation at Transformer Point – T-010S-120W-022-237 was upgraded to provide mire service capability to the customer's manufacturing facility being fed from this transformer point. The estimated cost of this upgrade is $4,004.43

Circuit #16000 – (Circuit #6)

In January MCPU repaired the Ridge Pin assembly on a pole at the intersection of N. Mulberry and West 10Th identified as a defect during Staff's September 2018 inspection of this circuit. The estimated expenditure for this repair was $630.63.

Also in January two (2) line poles were replaced near 412 W 12th. These poles were also as defects during Staff's September 2018 inspection of this circuit. The estimated expenditure for this repair was $10,272.51.

Circuit #17000 – (Circuit #7)

In April Switch Point SW-010S-120W-021-011 was created with the installation of a solid door disconnect near 14003 E. 1280 Rd. minimize the impact on customers during high water disconnect conditions. The estimated cost of this project is $1,508.22.

Additionally, in June Switch Point SW-010S-120W-016-002 was created with the installation of a solid door disconnect north of Transf Point T-010S-120W-016-002 to minimize the impact on customers during high water disconnect conditions. The estimated cost of this project is $1,248.84.

Circuit #21000 – (Froman Dr. Feeder)

In February MCPU replaced a line pole and reconfigured the primary and secondary facilities in the 800 block of Pear St. to better sectionalize the facilities in that area. This project eliminated Fuse Point F-010S-120W-020-193 and created Fuse Points F-010S-120W-020-003 and F-010S-120W-020-005. Mt. Carmel estimates the expenditure for this project to be $9,830.83

In March the customer service location at 2636 College Dr. was upgraded from single phase to three phase to accommodate the customer upgrades at that location. The estimated cost of this upgrade is $10,362.09.

In April the line section serviced by Fuse Point, F-010N-130W-002-005 was extended approximately 600 ft. to supply service to a customers' new construction in the area. The estimated cost of this extension is $7,409.09.

In august the line resloser located at Recloser Point, R-010S-120W-008-001 was replaced following damaged sustained during an earlier storm event. Mt. Carmel estimates the expenditure for this replacement to be $23,990.69.

In October, the existing service facilities at 1315 Mulberry St. were relocated to eliminate a possible NESC code violation as well as to provide facilities for a customer's new construction in the area. The estimated expenditure for this project is $1,884.88

Line Section F-010N-130W-002-010 was created in November with the installation of single phase URD primary facilities to service a customers new construction at 8177 N 2270 Blvd. the estimated cost of this installation is $6,336.75

Circuit #22000 – (Allendale Feeder)

See items listed under subsection (b)(3)(J) below

Circuit #31000 – (West 3Rd Feeder)

In February Fuse Point, F-010S-120W-029-003 was created with the installation of three phase OHD primary facilities to service an expansion project at the municipal water treatment facility. The estimated cost of this project is $30,165.17.

Circuit #32000 – (West 9Th St Feeder)

In March Mt. Carmel installed three phase primary facilities to supply service to a newly constructed assisted living facility located on the western edge of the City of Mt. Carmel. The estimated expenditure for this installation is $51,401.27.

In April MCPU installed approximately 265 Ft. of single phase URD primary to supply service to new dorm construction near Wabash Valley College. The estimated expenditure for this construction is $12,129.91

In July the switches at Switch Point, SW-010S-120W-020-021 were replaced due the age and condition of the in-service units. The estimated cost of this replacement is $2,081.40.

Circuit #41000 – (Rural West 3Rd Feeder)

See items listed under subsection (b)(3)(J) below.

Circuit #43000 – (Rural West 9Th Feeder)

In March the recloser at Recloser Point – R-010S-120W-006-002 was replaced as result of scheduled unit maintenance and inspection.

In July the line recloser at Recloser Point, R-010S-130W-011-011 was replaced as result of scheduled unit maintenance and inspection.

Additionally –

In February Mt. Carmel replaced three (3) line poles in the 100 and 600 blocks of Chestnut Street and relocated a span of three phase OHD primary in the 200 block of Chestnut Street to eliminate a potential NESC clearance violation. In connection with this project several locations where the primary phase conductor on the circuit trunk line appeared to be deteriorated were repaired. This project impacted Circuit #13000 – (Circuit #3) and Circuit #14000 – (Circuit #4) at an estimated cost of $52,032.70.

In July a corner pole carrying Circuits 31000 – (West 3Rd St Feeder), 32000 – (West 9Th St Feeder) and 33000 – (Vigo Coal Feeder) located at the intersection of West 3Rd and Division was replaced due to the age and condition of the in-service unit. The estimated expenditure for this replacement is $17,494.98.

Additionally, System wide, as a result of maintenance or other issues, MCPU replaced approximately twenty-five (25) line poles, twelve (12) customer services, eight (8) customer service poles, seven (7) transformer units, removed eight (8) customer service locations and removed approximately 1900 feet of OHD primary facilities which were no longer required.

Subsection (b)(3)(C): The number and duration of planned and unplanned interruptions for the annual reporting period and their impacts on customers.

2019 Planned (scheduled) Interruptions and Duration – There were ninety-one (91) planned interruption events resulting in 2,676 customer service interruptions for a total of 4,720,418 minutes of customer interruption duration.

Note: Mt. Carmel's service territory experienced an abnormally wet spring and early summer in 2019. Local reports indicated that as of June 25, 2019 the area had received approximately 13.73 inches of rainfall in excess of the normal for that period. Additionally, National Weather Service records indicate that Mt. Carmel's service territory received 60-70 inches of precipitation during 2019, which is 125-150% of the yearly normal for the area.

The National Weather Service operates and maintains a river gauge station located on the Wabash River Bridge crossing between Illinois and Indiana at Mt. Carmel. This station is downstream of those locations typically impacted by flooding events. Mt. Carmel monitors both current and forecasted river levels generated from this station as well as visually inspecting those sites known to be impacted by high water conditions to determine the best course of action for each location. Below are examples of information available from the National Weather Service monitoring station at Mt. Carmel as well as Table 4 identifying those points Mt. Carmel isolates during high water conditions and the high water level threshold used as a baseline for isolation measures.

Example of National Weather Service Hydrologic Prediction Data, Wabash River at Mt. Carmel, IL.

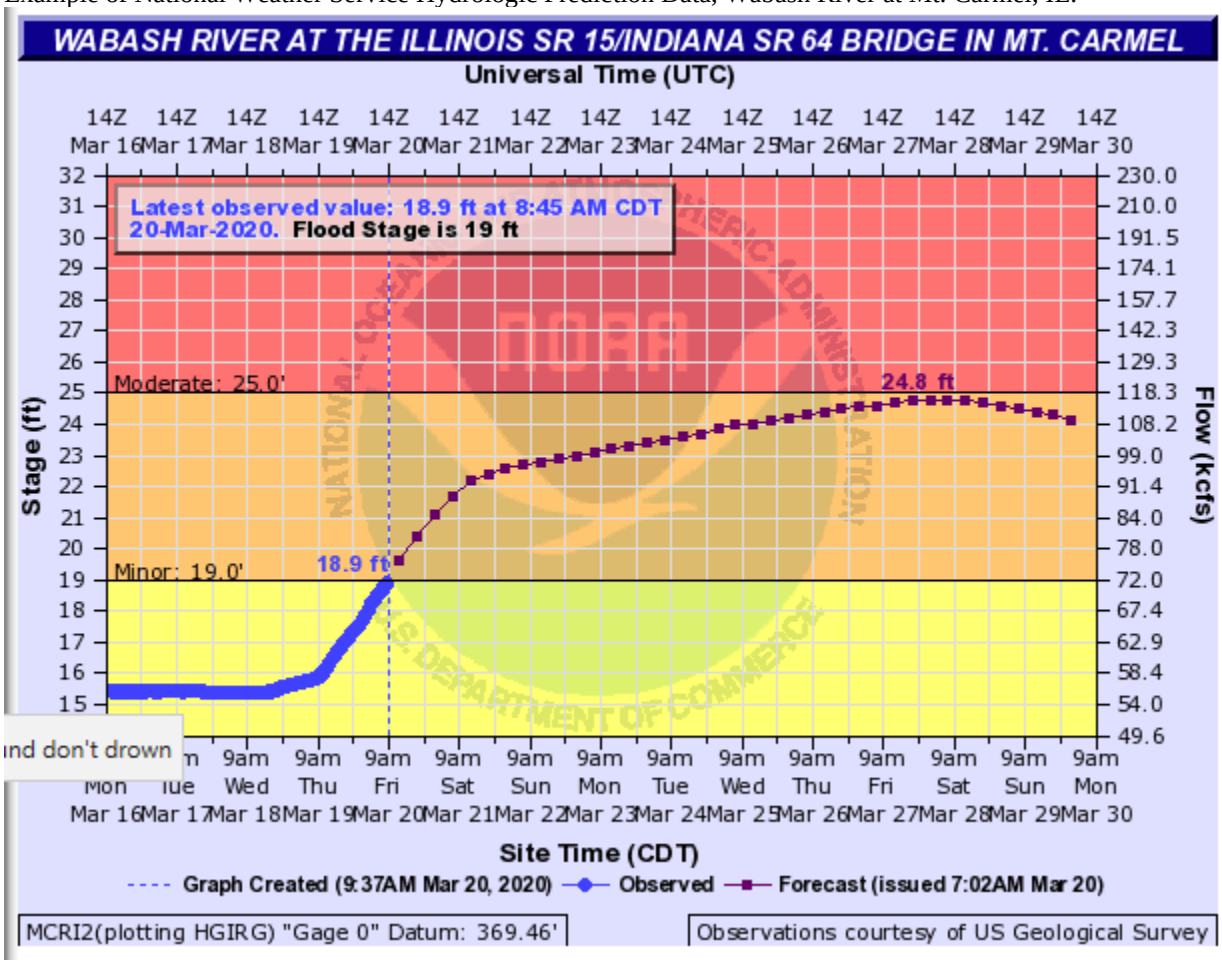

Table 4: High Water Isolation Threshold Points.

Location Identification	High Water Threshold	Customer Impact (approx.)
F-010N-110W-006-018 (South Pullyville)	22 Ft.	11
F-010N-110W-006-015 (North Pullyville)	20 Ft.	28
F-010N-120W-027-022 (Litherland)	22 Ft.	1
F-010N-120W-028-011 (Patton River Camps)	23.5 Ft.	12
F-010S-120W-005-007 (Dunkel at Highway)	28.5 Ft.	9
F-010S-120W-004-006 (Dunkel South)	27 Ft.	8
F-010S-120W-004-004 (Dunkel North)	23.5 Ft.	7
SW-010S-120W-016-002 (Helton)	26.5 Ft.	1
SW-010S-120W-021-006 (E 11th St.)	26.5 Ft.	2
SW-010S-120W-021-011 (Schreiber's)	24 Ft.	14
F-010S-120W-021-038 (E 5TH St.)	22.5 Ft.	6
F-010S-120W-021-045 / T-010S-120W-021-019 (Twin Rivers)	25 Ft.	1
F-010S-120W-028-040 (Hydraulic Ave)	23 Ft.	25
F-010S-120W-028-036 (Sea Wall)	23 Ft.	10
T-010S-120W-028-020 (Fish Market)	23 Ft.	3

Mt. Carmel uses the information in the table above as a baseline for location isolation during high water conditions. Monitoring of National Weather Service data and visual inspections may result in isolation of some locations prior to them reaching the threshold levels based on accessibility issues, projected raise timelines or other forecasted weather concerns. Mt. Carmel uses public media outlets to notify customers of anticipated long term outages in the areas known to be impacted by flooding conditions. Once high water conditions recede to at, or below, the isolation thresholds and ground conditions allow access, areas which were isolated are restored as soon as is practical and safe to do so.

Between late January and late June Mt. Carmel isolated locations in the low lying areas of the Wabash River due to Flooding conditions when river levels were forecasted to reach levels above the nineteen (19) Ft. flood stage threshold. National Weather Service and USGS records indicate that the following river crests were recorded during this time period causing Mt. Carmel to initiate its isolation program for some or all of those areas along and near the Wabash River.

Table 5: 2019 National Weather Service and USGS Recorded River Crests.

DATE	CREST	MCPU ISOLATION DATES
01/30/2019	22.14 Ft.	01/25 – 02/04/19
02/15/2019	28.38 Ft.	02/08 – 02/24/19
04/06/2019	21.17 Ft.	04/03 – 04/11/19
04/28/2019	24.63 Ft.	04/25 – 05/08/19
06/01/2019	19.31 Ft.	05/30 – 06/06/19
06/26/2019	27.26 Ft.	06/18 – 07/01/19

2019 Unplanned (unscheduled) Interruptions and Duration – Mt. Carmel calculates that there were 292 unscheduled Interruption events impacting resulting in 771,601.98 total minutes of customer outage duration.

Subsection (b)(3)(D): The number and causes of controllable interruptions for the annual reporting period.

See Supplemental Report.

Subsection (b)(3)(E): Customer service interruptions that were due solely to the actions or inactions of another utility, jurisdictional entity, independent system operator, or alternative retail electric supplier for the annual reporting period.

On August 08, 2019 at approximately 1:20 PM, Mt. Carmel experienced a loss of supply event on its 138KV Source of Supply facilities originating at Albion Illinois. Contact with Mt. Carmel's supplier indicated that a relay technician, while testing relays in the supplier's source substation for Mt. Carmel's 138KV supply line, caused a relay to operate resulting in a loss of supply event to two of Mt. Carmel's distribution substations. As a result of this event 1,584 customers experienced a service interruption lasting 19 minutes in duration for a total of 30,302 minutes of outage duration.

Subsection (b)(3)(F): A comparison of interruption frequency and duration for customers buying electric energy from the jurisdictional entity versus customers buying electric energy from another utility, or alternative retail electric supplier for the annual reporting period. A jurisdictional entity may base this comparison on each customer's supplier as of December 31 of each year. A jurisdictional entity need not include information on customers whose electric energy supplier is not known to the jurisdictional entity.

No customers were supplied by another entity in 2019.

Subsection (b)(3)(G): A report of the age, current condition, reliability and performance of the jurisdictional entity's existing transmission and distribution facilities, which shall include, without limitation, the data listed below. In analyzing and reporting the age of the jurisdictional entity's plant and equipment the jurisdictional entity may utilize book depreciation. Statistical estimation and analysis may be used where actual ages and conditions of facilities are not readily available. The use of such techniques shall be disclosed in the report.

i) A qualitative characterization of the condition of the jurisdictional entity's system defining the criteria used in making the qualitative assessment, and explaining why they are appropriate.

Mt. Carmel Public Utility Co.'s transmission facilities have an approximate age of 22 years with an average remaining life of approximately 8 years. The distribution facilities have an approximate average of 15 years with an average remaining life of 15 years. These figures are based on analysis completed 12/31/19 using the total transmission and distribution investment dollars and the life to date depreciation dollars to determine the percentage of remaining life.

The reliability enhancement programs outlined in subsection (b)(3)(A) – iii,vii,viii, as provided in this report, will ensure that the facilities operated by Mt. Carmel Public Utility Co. are inspected and maintained on a regular basis. Based on these actions the Mt. Carmel Public Utility Co.'s reliability indices and the results of the customer satisfaction survey (Attachment "A" to this report) Mt. Carmel believes that the existing

Transmission and Distribution facilities are in good operating condition and provide customers with safe and reliable service.

ii) A summary of the jurisdictional entity's interruptions and voltage variances reportable under this part, including the reliability indices for the annual reporting period.

The total number of planned and unplanned outage events for 2019 was 356

Note: Mt. Carmel experienced two (2) events during the most recent reporting period that resulted in outages occurring at the Substation or Distribution Source of Supply level, these events are incorporated into Table 7 below and are defined as follows:

On June 23, 2019 at approximately 11:25am Mt. Carmel experienced a loss of supply event to its South Division Substation location, although the outage occurred during a storm event, MCPU investigated the root cause of this substation outage and no obvious cause was found at the time of investigation. Mt. Carmel calculates that this event impacted 850 customers with a total outage duration of 62,050 customer minutes.

On August 08, 2019 at approximately 1:20pm. Mt. Carmel experienced a loss of supply event to its 138Kv source of supply facilities originating at its wholesaler providers substation in Albion Illinois. Contact with the wholesale provider indicated that a relay technician, while testing devices in the source substation for Mt. Carmel's 138Kv source of supply facilities, caused a relay to operate resulting in a loss of supply event. Mt Carmel calculates that this event impacted 1,584 customers with a total outage duration of 30,302 customer minutes.

The values identified in *Italic* in Table 7 below represent MCPU's System Reliability Indices excluding the Loss of Supply event listed above.

Table 6: The following table summarizes customer interruptions experienced in 2019 by cause category.

CATEGORY	NUMBER OF EVENTS	PERCENT OF TOTAL EVENTS
Animal Related	23	6.01
Vegetation	55	14.36
Employee\Contractor Personnel Errors	-0-	-0-
Underground Equipment Related	-0-	-0-
Transmission Equipment	-0-	-0-
Substation Equipment	1	0.26
Weather	105	27.41
Intentional\Maintenance	92	23.27
Other Alternative Supplier\Utility	1	0.26
Customer Equipment	28	7.31
Public	5	1.31
Overhead Equipment	31	8.09
Unknown	41	10.70
Other	-0-	-0-
Overload	2	0.52

Table 7: The system reliability indices for 2019 are as follows

SAIFI	1.88 – *(1.42)*
CAIFI	2.74 – *(2.59)*
CAIDI \ Min	76.91 – *(89.40)*

iii) The jurisdictional entity's expenditures for transmission construction and maintenance for the annual reporting period expressed in constant 1998 dollars, the ratio of those expenditures to the jurisdictional entity's transmission investment and the average remaining depreciation lives of the entity's transmission facilities, expressed as a percentage of total depreciation lives.

The total depreciated cost of transmission plant in service is $2,212,701 and the average remaining depreciation lives is 26.06%. The 2019 capital expenditure for transmission plant expressed in constant 1998 dollars was $3,430 and maintenance expenditures of $15,364 expressed in constant 1998 dollars for a total of .8% of depreciated plant in service and .22% of original cost. (No expenses for operations are included in these calculations.)

iv) The jurisdictional entity's expenditures for distribution construction and maintenance for the annual reporting period expressed in constant 1998 dollars, the ratio of those expenditures to the jurisdictional entity's distribution investment and the average remaining depreciation lives of the entity's distribution facilities, expressed as a percentage of the total depreciation lives.

The total depreciated cost of distribution plant in service is $12,227,225 and the average remaining depreciation lives is 50.42% The 2019 capital expenditure for distribution plant expressed in constant 1998 dollars was $562,215 or 2.32% of distribution investment. Maintenance expenditures, expressed in constant 1998 dollars were $1,492,306 or 3.84% of distribution investment. These total expenditures represent 12.2% of depreciated distribution investment and 6.2% of total distribution investment. (No operations expenses are included in these calculations.)

v) The results of a customer satisfaction survey completed during the annual reporting period and covering reliability, customer service, and customer understanding of the jurisdictional entity's services and prices.

This information is provided in Attachment "A" of this report.

vi) An overview pertaining to the number and substance of customers' reliability complaints for the annual reporting period and their distribution over the jurisdictional entity's operating area.

Mt. Carmel Public Utility Co. has received no informal or formal reliability complaints filed by customers of record with the Illinois Commerce Commission in the annual reporting period.

Subsection (b)(3)(H): A table showing the achieved level of each of the three reliability indices of each operating area for the annual reporting period (providing, however, that for any reporting period commencing before April 1, 1998, a jurisdictional entity shall not be required to report the CAIFI reliability index).

Table 8: The system reliability indices for 2019 are as follows

SAIFI	*1.88 – (1.42)*
CAIFI	*2.74 – (2.59)*
CAIDI \ Min	*76.91 – (89.40)*

Subsection (b)(3)(I): A list showing the worst-performing circuits for each operating area for the annual reporting period with the understanding that the designation of circuits as "worst-performing circuits" shall not, in and of itself, indicate a violation of this part.

Worst-performing Circuit(s) for reporting period – 2019, Mt. Carmel's Circuit #41000 (Rural West 3Rd Street Feeder) achieved the highest indices value in the SAIFI category. Mt. Carmel's Circuit #22000 (Allendale Feeder) achieved the highest value in the CAIFI category and Mt. Carmel's Circuit #12000 (Circuit #2) achieved the highest value in the CAIDI category for the most recent reporting period.

Table 9: Worst-performing Circuits, 2019

SAIFI (Outages / Customers Served)	CAIFI (Outages / Customers Impacted)	CAIDI \ Min. (Duration / Outages)
Circuit #41000 – (Rural West 3Rd St. Feeder) 5.91	Circuit #22000 – (Allendale Feeder) 3.69	Circuit #12000 – (Circuit #2) 190.18

Subsection (b)(3)(J): A statement of the operating and maintenance history of circuits designated as worst-performing circuits; a description of any action taken or planned to improve the performance of any such circuit (which shall include information concerning the cost of such action); and a schedule for the completion of any such action. (the jurisdictional entity may decide, based on cost considerations or other factors that it should take no action to improve the performance of one or more circuits designated as worst-performing circuits. If the jurisdictional entity decides to take no action to improve the performance of one or more circuits designated as worst-performing circuits, the jurisdictional entity shall explain its decision in its annual report.

Operating History Circuit #41000 – (Rural West 3Rd St. Feeder)

Highest SAIFI Circuit. This circuit experienced thirty-four (34) outage events during the reporting period.

Table 10: The following table indicates the number of outages by cause category for this circuit.

CATEGORY	NUMBER OF INTERRUPTIONS	PERCENT OF TOTAL INTERRUPTIONS
Animal Related	2	5.88
Vegetation Related	1	2.94
Weather Related	19	55.88
Overhead Equipment	4	11.76
Unknown Origin	6	17.65
Public Related	2	5.88

Maintenance History:

This circuit is predominantly rural overhead construction and consists of approx. 31.51 line miles of facilities. Mt Carmel estimates the most recent general circuit inspection was completed in April 2019 as part of Staff's Circuit Inspection Program. MCPU further estimates that trimming operations were last completed on this circuit in June 2018, with the next scheduled completion date being between April and June 2021.

Table 11: The following table indicates the maintenance and construction history on this circuit for the reporting period.

DATE:	MAINTENANCE PERFORMED:	LOCATION:	COST (EST):
01/01/2019	Abandoned & Removed Service	T-020S-130W009-002, 9879 E 700 Rd	$580.80
04/04/20109	Installed Guy Anchor & Abandoned Removed Abandoned 2000' of OHD Primary Facilities	F-010S-130W-028-011, Near 6402 N 1220 Blvd	$6,988.44
04/10/2019	Work Order Issued to Repair Minor Defects Identified During Circuit Inspection.	Various Location System Wide	$2,704.96
04/17/2019	Replaced Three Phase OHD with Single Phase URD	F-020S-130W-002-001, at 10830 Hwy 1	$11,478.44
05/28/2019	Installed Service Facilities for Customer Recreational Location	T-010S-130W-035-024 at 11156 Sugar Creek Ave.	$3,281.78
06/19/20109	Replaced Line Pole & Installed Facilities for Customers Farm Storage Location	F-010S-130W-035-013 at 11188 Hwy 1	$9,469.39
07/02/2019	Replaced Line Reclosere for Scheduled Maintenance	R-010S-130W-035-003, Near E 840 Rd & N 1120 Blvd	$3,575.45
09/20/19	Replaced Single Phase Transfmr. Installation	T-020S-130W-014-002, at 8988 E 850 Ln	$353.08
	Replaced 12 Line Poles	Various Locations Circuit Wide	$21,510.30

Actions Planned or Taken To Improve Reliability:

- Actions Planned: Mt. Carmel has no large scale actions planned for this circuit. Based on the operating history provided in Table 10 above, Mt. Carmel believes that the best short-term action is to continue routine tree trimming and inspection schedules on this circuit in an effort to identify possible reliability concerns.

- Actions Taken: See items in Table 11 above.

Operating History Circuit #22000 – (Allendale Feeder)

Highest CAIFI Circuit. This circuit experienced sixty-one (61) outage events during the reporting period.

Table 12: The following table indicates the number of outages by cause category for this circuit.

CATEGORY	NUMBER OF INTERRUPTIONS	PERCENT OF TOTAL INTERRUPTIONS
Animal	3	4.92
Vegetation Related	21	34.43
Weather Related	24	39.34
Public Related	2	3.28
Overhead Equipment	5	8.20
Unknown Origin	6	9.84

Maintenance History:

This circuit is predominantly rural overhead and consists of approx. 75.90 line miles of facilities. Mt Carmel estimates the most recent circuit inspection was completed in April 2019 as part of Staff's Circuit Inspection Program. MCPU

further estimates that trimming operations were last completed on this circuit in June 2019, with the next scheduled completion date being June 2022.

Table 13: The following table indicates the maintenance and construction history on this circuit for the reporting period.

DATE:	MAINTENANCE PERFORMED:	LOCATION:	COST (EST):
03/04/2019	Relocated Transfmr. and Upgraded Customer Service Facilities	T-010S-120W-008-106	$2,155.45
03/08/2019	Removed Approximately 370 Ft. of Abandoned OHD Primary Due to County Bridge Project	N 1900 Blvd West of E 1200 Rd	$2,580.99
04/18/2019	Replaced URD Primary and Pad Mount Transfmr.	T-010S-120W-017-108 at 115 Alder Rd	$4,204.67
04/13/2019	Relocated Customer Service	T-010N-120W-005-004 at 22112 E 1150 Rd	$1,533.67
06/05/2019	Removed Approximately 1400 Ft. of Abandoned OHD Primary and Associated Transfmr.	F_010N-120W-015-005, Near 19837 E 1300 Rd.	$1,125.49
06/12/2019	Replaced and Relocated OHD Primary Facilities	R-010N-120W-022-002, at N1970 Blvd & Wabash 18 Ave.	$12,717.66
06/29/2019	Replaced Line Reclosure Due to Damaged Bushing	R-010N-120W-022-002, Neat N 1970 Blvd & Hwy 1	$4,047.56
07/08/2019	Replaced Line Reclosure for Scheduled Maintenance	R-010N-120W-009-002, Near N 2100 Blvd and E 1300 Rd	$4,196.53
08/01/2019	Installed Additional Guying Insulators – NESC Violation	Near 15938 E 1150 Rd	$1/058.00
08/14/2019	Removed Approximately 120 ft. of OHD Primary to Abandoned Oil Well Location	Near 20231 Hwy 1	$1,405.44
09/16/2019	Installed 100Kvar Capacitor Bank	C-010N-120W-016-001, Near 12498 N 2050 Blvd	$4,224.63
09/30/2019	Replaced Damaged Meter Pedestal	Near 126 Kieffer Ave	$1,916.81
10/24/2019	Extended URD Primary and Relocated Transfmr.	F-010N-120W-004-015, at 12630 Hwy 11	$2,660.78
11/01/2019	Upgraded Customers Service	T-010N-120W-028-008, at 18150 Hwy 1	
11/08/2019	Installed Facilities for New Communications Junction	T-010N-120W-009-011, at 13081 Hwy 11	$1,531.31
12/26/2019	Replaced Customer Service Facilities	304 Cherry Hill Dr.	$617.58
	Replaced 51 Line Poles	Various Locations Circuit Wide	$100,252.18

Actions Planned or Taken To Improve Reliability:

- Actions Planned: See items identified under subsection (b)(3)(B) “Circuit #22000 (Allendale Feeder) above.
- Actions Taken: See items listed in Table 13 Above.

Operating History Circuit #12000 – (Circuit #2)

Highest CAIDI Circuit. This circuit experienced eight (8) outage events during the reporting period.

Table 14: The following table indicates the number of outages by cause category for this circuit.

CATEGORY	NUMBER OF INTERRUPTIONS	PERCENT OF TOTAL INTERRUPTIONS
Animal	3	37.5
Vegetation Related	1	12.5
Weather Related	3	37.5
Overhead Equipment	1	12.5

Maintenance History:

This circuit is predominantly urban overhead and consists of approx. 3.45 line miles of facilities. Mt Carmel estimates the most recent circuit inspection was completed in April 2019 as part of Staff’s Circuit Inspection Program. MCPU further estimates that trimming operations were last completed on this circuit in December 2019, with the next scheduled completion date being December 2022.

Table 15: The following table indicates the maintenance and construction history on this circuit for the reporting period.

DATE:	MAINTENANCE PERFORMED:	LOCATION:	COST (EST):
05/15/2019	Replaced Customers Service Pole	T-010S-120W-021-049, at 429 E 5th	$1,202.00
06/18/2019	Replaced Primary Span – NESC Code Violation	F-010S-120W-020-1121 at 615 N Mulberry	$9,039.53
July, 2019	Relocated Customer Service Facilities – NESC Code Violation	T-010S-120W-020-085, at 216 E 5th	

Actions Planned or Taken To Improve Reliability:

- Actions Planned: See items identified under subsection (b)(3)(B) "Circuit #12000 (Circuit #2) above.

Mt. Carmel believes that the root cause of this circuit achieving the highest level in the CAIDI Indices category is due to a major storm event which occurred on June 21, 2019. During this event two trees, located on the opposite side of the alleyway from MCPU's facilities were downed by high winds associated with the storm. These trees damaged facilities in two separate areas of this feeder's coverage territory. Debris removal required the use of equipment which Mt. Carmel had to acquire from an outside source, adding to the overall outage duration for the customers impacted. Mt. Carmel calculates that these two events accounted for a total of approximately 213,697 minutes of customer interruption. Mt. Carmel has no additional work planned for this circuit at this time.

- Actions Taken: See items listed in Table 15 Above.

Subsection (b)(3)(K): Commencing June 10, 2001, tables or graphical representations, covering for the last three years all of the jurisdictional entity's customers and showing, in ascending order, the total number of customers which experienced a set number of interruptions during the year (i.e., the number of customers who experienced zero interruptions, the number of customers who experienced one interruption. etc.)

Table 16:

Number of Outages Experienced	Number of Customers		
	2017	2018	2019 – Annual Reporting Period
0	21	1,257	1,111
1	742	666	1,484
2	637	233	864
3	1880	1,068	421
4	953	878	673
5	614	595	482
6	491	406	253
7	154	146	80
8	7	185	60
9	2	36	19
10	-0-	35	21
11	-0-	3	5
12	-0-	10	1
13	-0-	1	-0-

Subsection (b)(3)(L): Commencing June 10, 2001, for those customers who experienced interruptions in excess of the service reliability targets. A list of every customer, identified by a unique number assigned by the jurisdictional entity and not the customers name or account number, the number of interruptions and interruption duration experienced in each of the three preceding years, and the number of consecutive years in which the customer has experienced interruptions in excess of the service reliability targets.

See Supplemental Report

Subsection (b)(3)(M): The name, address and telephone number of the jurisdictional entity representative who can be contacted for additional information regarding the annual report.

David W. James II
President/COO
Mt. Carmel Public Utility Co.
316 Market Street
Mt. Carmel, Illinois 62863
Phone: (618)-262-5151
Fax: (618)-262-4798
Email: djames@mtcpu.com

MT. CARMEL PUBLIC UTILITY CO.

ELECTRIC TRANSMISSION AND DISTRIBUTION REVIEW

ATTACHMENT "A"

CUSTOMER SATISFACTION SURVEY

MT. CARMEL PUBLIC UTILITY CO.